Teaching thoughts from the frontlines of evolutionary biology (EBIO 3080)

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I often wonder how students perceive me as a teacher. I've never recorded myself in front of a classroom. I know I should. The few times I've seen myself on camera under other circumstances (a friend wanted to make a music video out of a hip hop song I made in high school), I was surprised at how much I blinked. I think I would be annoyed with that if I was a student in my own classroom. I think my voice is probably annoying too. It's amazing how much crap our bodies are doing without our brains consciously willing them to.

Less superficially, I wonder how well I convey information to students. In lab I gave an outline of useful R tidbits before students were asked to do a short analysis on male and female height – a chance to practice plotting and generating summary statistics. I attempted to describe what vectors are, their central importance to using R effectively, and of course how to make them. It's so easy for me to say or think, "vector" and let the flood (or is it a trickle?) of experience take hold. But that flood is hidden to everyone else (thankfully), and my conception of a vector in R is probably quite different than others who know vectors equally well or better than myself. Somehow the already flooded can discuss vectors with some ease, but we aren't truly talking about the same thing, because we have a different set of knowledge and experience that led us to our understanding of a vector. I guess the only true way to understanding is practice then, whatever practice looks like for a given task or concept.

Andy describes learning as a sort of ever-growing brain jigsaw. We all have prior knowledge and experience, and getting new information into that framework is a matter of determining where that new information best fits into our existing brain jigsaw. Not so far from the mechanistic truth I'd think. We don't always place the pieces well, nor do we keep the pieces in their original forms. Sometimes we mush them in a place they don't actually fit, and internally misrepresent the information – perhaps forever to some degree. All this to say, as hard as I try to convey information to students – from my brain to theirs – it is ultimately an internal process that will set that new information in place, and allow the floodgates to open on command. That's comforting in some ways because it

takes some pressure off teachers for having a perfect performance. Students have the hardest job no matter how "good" their teachers are. But it's also troubling in other ways because it's so inefficient. Will we reach a point when the accumulation of new knowledge outpaces our ability to pass it on completely to future generations? That's the goal of teaching isn't it? We have probably passed the said point of "too much knowledge" already, that is, until we're all robots of some kind.

Oh metaphors, how corny you make my prose. Perhaps I'll work in some puns next time.